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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,816	CREDELLE ET AL.	
	Examiner	Art Unit	
	Kimberly K. McClelland	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29 and 48-53* is/are pending in the application.

4a) Of the above claim(s) *48-53* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/30/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 29 recites the limitation "said transfer tool" and "said adhesive layer" in lines 2-3. There is insufficient antecedent basis for these limitations in the claim. Clarification is required. Claim 29 appears to be a mistyped dependent claim from independent claim 28. However, for the purposes of examination, examiner assumes claim 29 is independent.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 9-12, and 28-29 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,511,048 to Bayan et al.

6. With respect to claim 1, Bayan et al. discloses an off-load system for semiconductor devices, including a relocating tool (60) having a first plurality of receptor sites having a plurality of functional blocks (62) deposited therein; and a transfer tool having a plurality of nozzles (4) which are in alignment with said first plurality of receptor sites, said transfer tool being able to remove said plurality of functional blocks from said relocating tool (60) and deposit said plurality of functional blocks (62) into a second plurality of receptor sites (43) in said substrate (40; See Figure 1).

7. As to claim 9, Bayan et al. discloses said transfer tool is further coupled to a vacuum source (6) conveying vacuum to said plurality of nozzles (4; See Figure 1).

8. As to claim 10, Bayan et al. discloses all of said first plurality of receptor sites have same dimensions and shapes (See Figure 2).

9. As to claim 11, Bayan et al. discloses said first plurality of receptor sites comprises of different size and shape receptor sites (column 5, lines 29-50).

10. As to claim 12, Bayan et al. discloses said plurality of nozzles has a dimension that is smaller than a dimension of said plurality of functional blocks (see Figure 2).

11. As to claim 28, Bayan et al. discloses a relocating tool (60) having a first plurality of receptor sites having a plurality of functional blocks (62) deposited therein; and a transfer tool (4) coupling to an adhesive layer (i.e. tape; column 4, lines 39-49); said transfer tool to transfer said plurality of functional blocks (62) from said relocating tool to a substrate (40) wherein said plurality of functional blocks adhere to said adhesive layer (i.e. tape).

12. As to claim 29, Bayan et al. discloses a vacuum source (6) coupling to said transfer tool (4), said vacuum source adheres said adhesive layer (i.e. tape) to said transfer tool (column 4, lines 19-38).

13. Claims 28-29 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,742,561 to Nam et al.

14. As to claim 28, Nam et al. discloses an apparatus for die bonding, including a relocating tool (70) having a first plurality of receptor sites having a plurality of functional blocks (72) deposited therein; and a transfer tool (52/54) coupling to an adhesive layer (68); said transfer tool to transfer said plurality of functional blocks (72) from said relocating tool to a substrate (60) wherein said plurality of functional blocks adhere to said adhesive layer (See Figure 4).

15. As to claim 29, Nam et al. discloses a vacuum source (6) coupling to said transfer tool (52/54), said vacuum source adheres said adhesive layer (68) to said transfer tool (See Figures 5C-5D).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 1, 3, 6-7, 9-12, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,742,561 to Nam et al. in view of U.S. Patent No. 6,511,048 to Bayan et al.

18. With respect to claim 1, Nam et al. discloses an apparatus for die bonding, including a relocating tool (56) having a first plurality of receptor sites having a plurality of functional blocks (72) deposited therein; and a transfer tool (54), said transfer tool being able to remove said plurality of functional blocks (72) from said relocating tool (56) and deposit said plurality of functional blocks (72) into a second plurality of receptor sites in said substrate (68; See Figure 4). However, Nam et al. does not specifically disclose a plurality of nozzles on the transfer tool.

19. Bayan et al. discloses an off-load system for semiconductor devices, including using multiple nozzles which are in alignment with said first plurality of receptor sites in the transfer tool (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plurality of nozzles in the transfer tool taught by Bayan et al. in the transfer tool of Nam et al. The motivation would have been to allow for simultaneous transfer of multiple devices, thus improving unit output.

20. As to claim 3, Nam et al. discloses an adhesive dispensing device (74) to dispense adhesive (68) into said second plurality of receptor sites in said substrate

before said plurality of functional blocks are deposited into said second plurality of receptor sites (See Figure 4).

21. As to claim 6, Nam et al. discloses second plurality of receptor sites (24) being configured to mate with said plurality of functional blocks (25; See Figure 2).

22. As to claim 7, Nam et al. discloses said plurality of receptor sites have any one of a trapezoidal shape, a rectangular shape, a square shape, and a cylindrical shape (See Figure 4).

23. The shape of the functional blocks is interpreted as the material being acted upon in the apparatus. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Consequently, this limitation has not been given patentable weight.

24. As to claim 9, Nam et al. does not specifically discloses transfer tool (54) is further coupled to a vacuum source conveying vacuum to said nozzles. However, the similar transfer tool of Nam et al. (52) is disclosed as being operated by a vacuum (column 4, lines 30-43). Examiner asserts it would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the second transfer tool of Nam et al. under vacuum. The motivation would have been to temporarily constrain the die during transport.

25. As to claim 10, Nam et al. discloses all of said first plurality of receptor sites have same dimensions and shapes (See Figure 4).

26. As to claim 11, Nam et al. does not specifically disclose said first plurality of receptor sites comprises of different size and shape receptor sites.

27. Bayan et al. discloses an off-load system for semiconductor devices, including said first plurality of receptor sites comprises of different size and shape receptor sites (column 5, lines 29-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the different size and shape receptor sites taught by Bayan et al. with the receptor sites of Nam et al. The motivation would have been to allow various sized blocks to be positioned in various orientations.

28. As to claim 12, Nam et al. discloses said plurality of nozzles has a dimension that is smaller than a dimension of said plurality of functional blocks (See Figure 5C).

29. As to claim 16, Nam et al. discloses a relocating tool having a first plurality of receptor sites (70) having a plurality of functional blocks (72) deposited therein; a transfer tool (54), said transfer tool being able to remove said plurality of functional blocks (72) from said relocating tool (70) and deposit said plurality of functional blocks into said substrate (68) wherein said substrate is made out of a thermoset material (column 2, lines 7-14; See Figure 4).

30. Bayan et al. discloses an off-load system for semiconductor devices, including using multiple nozzles which are in alignment with said first plurality of receptor sites in the transfer tool (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plurality of nozzles in the

transfer tool taught by Bayan et al. in the transfer tool of Nam et al. The motivation would have been to allow for simultaneous transfer of multiple devices, thus improving unit output.

The circuitry components of the functional blocks are interpreted as the material being acted upon in the apparatus. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Consequently, this limitation has not been given patentable weight.

Also, the phrase, "wherein said substrate is hot wherein said plurality of functional blocks are being deposited" is considered functional language. The examiner would like to note that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997); "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). See MPEP § 2114. Examiner has found the phrase, "wherein said substrate is hot wherein said plurality of

functional blocks are being deposited" Does not provide any structural limitations to the current apparatus.

31. As to claim 17, Nam et al. discloses a heating device capable of heating said substrate to above a softening point (column 2, lines 25-30).

32. Claims 1, 9, 12, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,765,277 to Jin et al. in view of U.S. Patent No. 6,511,048 to Bayan et al.

33. With respect to claim 1, Jin et al. discloses a die bonding apparatus, including a relocating tool (50) having a first plurality of receptor sites having a plurality of functional blocks (57) deposited therein; and a transfer tool (60), said transfer tool being able to remove said plurality of functional blocks (57) from said relocating tool (50) and deposit said plurality of functional blocks (57) into a second plurality of receptor sites in said substrate (55; See Figure 5). However, Jin et al. does not specifically disclose a plurality of nozzles on the transfer tool.

34. Bayan et al. discloses an off-load system for semiconductor devices, including using multiple nozzles which are in alignment with said first plurality of receptor sites in the transfer tool (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plurality of nozzles in the transfer tool taught by Bayan et al. in the transfer tool of Jin et al. The motivation would

have been to allow for simultaneous transfer of multiple devices, thus improving unit output.

35. As to claim 9, Jin et al. does not specifically discloses transfer tool (54) is further coupled to a vacuum source conveying vacuum to said nozzles. However, the similar transfer tool of Jin et al. (52) is disclosed as being operated by a vacuum (column 4, lines 30-43). Examiner asserts it would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the second transfer tool of Jin et al. under vacuum. The motivation would have been to temporarily constrain the die during transport.

36. As to claim 12, Jin et al. discloses said plurality of nozzles has a dimension that is smaller than a dimension of said plurality of functional blocks (See Figure 6).

37. As to claim 16, Jin et al. discloses a relocating tool having a first plurality of receptor sites (50) having a plurality of functional blocks (57) deposited therein; a transfer tool (51), said transfer tool being able to remove said plurality of functional blocks (57) from said relocating tool (50) and deposit said plurality of functional blocks into said substrate (55) wherein said substrate is made out of a thermoset material (column 1, lines 44-56; See Figure 5). However, Jin et al. does not specifically disclose a plurality of nozzles on the transfer tool.

38. Bayan et al. discloses an off-load system for semiconductor devices, including using multiple nozzles which are in alignment with said first plurality of receptor sites in the transfer tool (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d

669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plurality of nozzles in the transfer tool taught by Bayan et al. in the transfer tool of Jin et al. The motivation would have been to allow for simultaneous transfer of multiple devices, thus improving unit output.

The circuitry components of the functional blocks are interpreted as the material being acted upon in the apparatus. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Consequently, this limitation has not been given patentable weight.

Also, the phrase, "wherein said substrate is hot wherein said plurality of functional blocks are being deposited" is considered functional language. The examiner would like to note that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997); "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). See MPEP § 2114.

Examiner has found the phrase, "wherein said substrate is hot wherein said plurality of functional blocks are being deposited" Does not provide any structural limitations to the current apparatus.

39. As to claim 17, Jin et al. discloses a heating device capable of heating said substrate to above a softening point (column 1, lines 44-56).

40. As to claim 18, Jin et al. discloses a curing device to cure said substrate (column 1, lines 44-56).

41. As to claim 19, Jin et al. discloses a transfer tool (51/53), said transfer tool to remove a plurality of functional blocks (57) formed on a first substrate (50) from said first substrate; a transfer station to invert (52) said plurality of functional blocks; and wherein said transfer tool (51/53) to pick up inverted functional blocks and deposit said inverted functional blocks onto a second substrate having a plurality of receptor sites (column 4, lines 23-30; See Figure 5). However, Jin et al. does not specifically disclose a plurality of nozzles on the transfer tool.

42. Bayan et al. discloses an off-load system for semiconductor devices, including using multiple nozzles which are in alignment with said first plurality of receptor sites in the transfer tool (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plurality of nozzles in the transfer tool taught by Bayan et al. in the transfer tool of Jin et al. The motivation would

have been to allow for simultaneous transfer of multiple devices, thus improving unit output.

43. As to claim 20, Jin et al. discloses a second transfer tool (53) is used to pick up a inverted functional blocks and deposit said inverted blocks onto said second substrate having a plurality of receptor sites (See Figure 5). However, Jin et al. does not specifically disclose a plurality of nozzles on the second transfer tool.

44. Bayan et al. discloses an off-load system for semiconductor devices, including using multiple nozzles which are in alignment with said first plurality of receptor sites in the transfer tool (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plurality of nozzles in the transfer tool taught by Bayan et al. in the transfer tool of Jin et al. The motivation would have been to allow for simultaneous transfer of multiple devices, thus improving unit output.

45. As to claim 21, Jin et al. does not specifically disclose said plurality of receptor sites has a matching pattern with said plurality of nozzles on said transfer tool.

46. Bayan et al. discloses an off-load system for semiconductor devices, including said plurality of receptor sites (40) has a matching pattern with said plurality of nozzles on said transfer tool (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill

in the art at the time the invention was made to combine the matching nozzles in the transfer tool taught by Bayan et al. in the transfer tool of Jin et al. The motivation would have been to allow for simultaneous transfer of multiple devices with proper alignment, thus improving unit output.

47. As to claim 22, Jin et al. does not specifically disclose said plurality of receptor sites has a matching pattern with said another plurality of nozzles on said another transfer tool.

48. Bayan et al. discloses an off-load system for semiconductor devices, including said plurality of receptor sites (40) has a matching pattern with said another plurality of nozzles on said another transfer tool. J (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the matching nozzles in the transfer tool taught by Bayan et al. in the transfer tool of Jin et al. The motivation would have been to allow for simultaneous transfer of multiple devices with proper alignment, thus improving unit output.

49. Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,742,561 to Nam et al. in view of U.S. Patent No. 6,511,048 to Bayan et al. as applied to claims 1, 3, 6-7, 9-12, and 16-17 above, and further in view of U.S. Patent No. 6,193,136 to Higashi et al.

50. With respect to claim 2, Nam et al. does not disclose a vibration device coupling to said transfer tool to agitate said transfer tool as said plurality of functional blocks are being deposited into said second plurality of receptor sites.

51. Higashi et al. discloses a component mounting apparatus, including a vibration device coupling to said transfer tool to agitate said transfer tool as said plurality of functional blocks are being deposited into said second plurality of receptor sites (column 7, lines 33-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the vibratory device taught by Higashi et al. with the transfer tool disclosed by Nam et al. The motivation would have been to allow for ultrasonic bonding (column 3, lines 25-29).

52. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,742,561 to Nam et al. in view of U.S. Patent No. 6,511,048 to Bayan et al. as applied to claims 1, 3, 6-7, 9-12, and 16-17 above, and further in view of U.S. Patent No. 6,261,871 to Langari et al.

53. With respect to claim 4, Nam et al. does not specifically disclose a micro liquid dispensing device to dispense droplets of fluid-over said second plurality of receptor sites before said plurality of functional blocks are deposited into said second plurality of receptor sites.

54. Langari et al. discloses an apparatus for making flip-chips, including a micro liquid dispensing device to dispense droplets of fluid-over said second plurality of receptor sites before said plurality of functional blocks are deposited into said second

plurality of receptor sites (column 8, lines 5-13). It would have been obvious to one of ordinary skill in the art a the time the invention was made to combine the liquid dispensing device taught by Langari et al. with the apparatus disclosed by Nam et al. The motivation would have been to remove any contaminants and produce a stronger adhesion between the substrate and functional elements (column 8, lines 5-13).

55. As to claim 5, Nam et al. discloses an adhesive dispensing device (74) to dispense adhesive (68) into said second plurality of receptor sites in said substrate before said plurality of functional blocks are deposited into said second plurality of receptor sites (See Figure 4). However, Nam et al. does not specifically disclose a micro liquid dispensing device to dispense droplets of fluid-over said second plurality of receptor sites before said plurality of functional blocks are deposited into said second plurality of receptor sites.

56. Langari et al. discloses an apparatus for making flip-chips, including a micro liquid dispensing device to dispense droplets of fluid-over said second plurality of receptor sites before said plurality of functional blocks are deposited into said second plurality of receptor sites (column 8, lines 5-13). It would have been obvious to one of ordinary skill in the art a the time the invention was made to combine the liquid dispensing device taught by Langari et al. with the apparatus disclosed by Nam et al. The motivation would have been to remove any contaminants and produce a stronger adhesion between the substrate and functional elements (column 8, lines 5-13).

57. Claims 8 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,742,561 to Nam et al. in view of U.S. Patent No. 6,511,048 to Bayan et al. as applied to claims 1, 3, 6-7, 9-12, and 16-17 above, and further in view of U.S. Patent No. 5,904,545 to Smith et al.

58. With respect to claim 8, Nam et al. does not specifically disclose asymmetrically shaped receptor sites. The shape of the functional blocks is not given patentable weight.

59. Smith et al. discloses an apparatus for fabricating micro-structures, including it is known in the art to use any shaped receptor sites (column 13, lines 46-56). Examiner asserts the disclosure of "any block having shaped features" teaches blocks are not limited to symmetrical shapes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute asymmetrical shaped receptor sites for symmetrical blocks, because the different shapes are functional equivalents. Substitution of equivalents requires no express motivation. In re Fount, 213 USPQ 532 (CCPA 1982); In re Siebentritt 152, USPQ (CCPA 1967).

60. As to claim 13, Nam et al. does not specifically disclose said plurality of functional blocks are deposited in said relocating tool by an FSA device using a slurry to deposit said plurality of functional blocks into said plurality of receptor sites.

61. Smith et al. discloses an apparatus for fabricating microstructures, including said plurality of functional blocks are deposited in said relocating tool by an FSA device using a slurry to deposit said plurality of functional blocks into said plurality of receptor sites (column 11, lines 5-8). It would have been obvious to one of ordinary skill in the

art at the time the invention was made to substitute the FSA depositing step of Smith et al. for the wafer of Nam et al. The motivation would have been to provide evenly spaced and aligned blocks and allow for devices that are not in wafer form.

62. As to claim 14, Nam et al. discloses a drying device (column 4, lines 55-56).

63. As to claim 15, Nam et al. discloses a curing device (column 1, lines 59-62).

64. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,765,277 to Jin et al. in view of U.S. Patent No. 6,511,048 to Bayan et al. and U.S. Patent No. 6,245,597 to Fernandez.

65. With respect to claim 23, Jin et al. discloses a die bonding apparatus, including a transfer tool (51), said transfer tool to remove a plurality of functional blocks (57) formed on a first substrate from said first substrate and to transfer said plurality of functional blocks from said first substrate to a functional layer (i.e. tape; column 1, lines 44-57; See Figure 5). However, Jin et al. does not specifically disclose a plurality of nozzles on the transfer tool or forming a second substrate.

66. Bayan et al. discloses an off-load system for semiconductor devices, including using multiple nozzles which are in alignment with said first plurality of receptor sites in the transfer tool (4; See Figure 1). The mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the plurality of nozzles in the transfer tool taught by Bayan et al. in the transfer tool of Jin et al. The motivation would

have been to allow for simultaneous transfer of multiple devices, thus improving unit output.

67. Fernandez discloses an apparatus for forming integrated circuits, including a substrate forming station to form a second substrate (40) over said plurality of functional blocks (10) transferred to said functional layer (column 3, lines 10-14). It would have been obvious to one of ordinary skill in the art a the time the invention was made to combine the second substrate taught by Fernandez with the apparatus of Jin et al. The motivation would have been to provide further protection for the electronic article.

68. As to claim 24, the composition of the functional layer composition is interpreted as the material being acted upon in the apparatus. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Consequently, this limitation has not been given patentable weight.

69. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,765,277 to Jin et al. in view of U.S. Patent No. 6,511,048 to Bayan et al. and U.S. Patent No. 6,245,597 to Fernandez as applied to claims 23-24 above, and further in view of U.S. Patent No. 6,090,474 to Johansson et al.

70. With respect to claim 25, Jin et al. does not specifically disclose a carrier film on the functional layer.

71. Johansson et al. discloses an apparatus for making printed circuit boards, including a carrier film on the functional layer (column 1, lines 10-19). It would have

been obvious to one of ordinary skill in the art at the time the invention was made to provide the functional layer on a carrier film as taught by Johansson et al. The motivation would have been to adequately support the functional film during processing.

72. The composition of the functional layer composition is interpreted as the material being acted upon in the apparatus. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Consequently, this limitation has not been given patentable weight. Furthermore, Johansson discloses it is known in the art to employ photocurable polymers in circuit boards (column 3, lines 4-19).

73. Also, removal of the carrier film is considered a method step, and does not provide any further structural limitations to the apparatus.

74. As to claim 26, Jin et al. does not specifically disclose vias on the functional layer.

75. Johansson et al. discloses an apparatus for making printed circuit boards, including vias on the functional layer. (column 1, lines 10-19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide vias in the functional layer as taught by Johansson et al. The motivation would have been to allow for electrical connection between the functional block and substrate.

76. It is unclear if this limitation is an apparatus claim or a product claim. Applicant is encouraged to define an apparatus in terms of structure to overcome the art of record.

77. As to claim 27, the composition of the functional layer composition is interpreted as the material being acted upon in the apparatus. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Consequently, this limitation has not been given patentable weight. Furthermore, Johansson discloses it is known in the art to employ photoresist polymers in circuit boards (column 3, lines 4-19).

Response to Arguments

78. In light of the current amendment, the rejections of claims 13-15, 20-22, and 24 are withdrawn. The rejection of claim 29 is maintained. Applicant argues claim 29 is dependent on claim 28 (remarks, pages 12 and 13). However, claim 29, as currently presented is independent and does not refer to independent claim 28. Consequently, the current rejection of claim 29 due to lack of antecedent basis under 35 U.S.C. 112, second paragraph is maintained.

79. Applicant's arguments filed 7/30/07 have been fully considered but they are not persuasive. Applicant's remaining arguments are primarily drawn to the lack of disclosure in any of the current references of a "plurality of receptor sites" (remarks, pages 12-19). Examiner disagrees. The words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). The phrase, "receptor site" is interpreted as meaning a location which accepts functional blocks. Applicant

has not redefined the term to include the structural indentations shown in Figures 3a-3c. Consequently, the disclosures of Bayan, Nam, and Jin of multiple locations where functional blocks are placed meet applicant's claimed "plurality of receptor sites". Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

80. As to applicant's argument that Smith teaches away from Nam and Bayan (remarks, page 17), examiner disagrees. Smith, Bayan and Nam are all drawn to systems for placing semiconductor devices. One of ordinary skill, motivated by the desire to provide evenly spaced and aligned blocks and allow for devices that are not in wafer form would look to the teaching of Smith of asymmetrically shaped receptor sites and an FSA device in the apparatus of Nam. The fluid transport method of Smith does not alter the intrinsic advantages of using the sites of asymmetric shapes and FSA placement, which would still exist in the apparatus of Nam. Consequently, adequate motivation exists that it would have been obvious to one of ordinary skill in the art at the time the invention was made the combine Smith's teaching of asymmetric receptor sites and FSA placement with the apparatus of Nam.

81. Therefore, the rejections of claims 1-29 under 35 U.S.C. 102 and 103 under various references is maintained.

Conclusion

82. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly K. McClelland whose telephone number is (571) 272-2372. The examiner can normally be reached on 8:00 a.m.-5 p.m. Mon-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571)272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kim McClelland

KKM

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